



A.D. 1856 N^o 1472.

S P E C I F I C A T I O N

OF

JOHN MILLER.

FURNACES.

L O N D O N :

PRINTED BY GEORGE E. EYRE AND WILLIAM SPOTTISWOODE,

PRINTERS TO THE QUEEN'S MOST EXCELLENT MAJESTY :

PUBLISHED AT THE GREAT SEAL PATENT OFFICE,

25, SOUTHAMPTON BUILDINGS, HOLBORN.

Printed by

1857.



A.D. 1856 N° 1472.

Furnaces.

LETTERS PATENT to John Miller, of Drogheda, Ireland, for the Invention of "IMPROVEMENTS IN FURNACES, FOR MORE EFFECTUALLY CONSUMING THE SMOKE AND ECONOMIZING THE FUEL EMPLOYED THEREIN."

Sealed the 19th December 1856, and dated the 23rd June 1856.

PROVISIONAL SPECIFICATION left by the said John Miller at the Office of the Commissioners of Patents, with his Petition, on the 23rd June 1856.

I, JOHN MILLER, of Drogheda, Ireland, do hereby declare the nature of
5 the said Invention of "IMPROVEMENTS IN FURNACES, FOR MORE EFFECTUALLY CONSUMING THE SMOKE AND ECONOMIZING THE FUEL EMPLOYED THEREIN," to be as follows:—

This Invention consists in adapting to furnace doors two sets of metal plates, fixed in a skeleton door or metal frame somewhat after the fashion of a corn-
10 kiln louvre, said plates being arranged, disposed, and fixed in the aforesaid frame at nearly opposite angles to each other, for the purpose of preventing radiation of heat outwards. The plates are adapted in size and number to the requirements of the furnace to which they are to be applied, so as to allow sufficient atmospheric air, and only sufficient, to enter the furnace. The air in
15 its passage between said plates becomes heated, and in this manner and by these means the consumption of the smoke is more perfectly effected than heretofore, and great economy of fuel attained.

Miller's Improvements in Furnaces.

SPECIFICATION in pursuance of the conditions of the Letters Patent, filed by the said John Miller in the Great Seal Patent Office on the 23rd December 1856.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, JOHN MILLER, of Drogheda, Ireland, send greeting. 5

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Twenty-third day of June, in the year of our Lord One thousand eight hundred and fifty-six, in the twentieth year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said John Miller, Her special licence that I, the said John Miller, my execu- 10
tors, administrators, and assigns, or such others as I, the said John Miller, my executors, administrators, and assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel 15
Islands, and Isle of Man, an Invention for "**IMPROVEMENTS IN FURNACES, FOR MORE EFFECTUALLY CONSUMING THE SMOKE AND ECONOMIZING THE FUEL THEREIN,**" upon the condition (amongst others) that I, the said John Miller, my execu-
tors or administrators, by an instrument in writing under my, or their, or one of their hands and seals, should particularly describe and ascertain the nature 20
of the said Invention, and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said Letters Patent.

NOW KNOW YE, that I, the said John Miller, do hereby declare the 25
nature of the said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement thereof, that is to say:—

My Invention consists in adapting to furnace doors two sets of metal plates, fixed in a skeleton door or metal frame somewhat after the fashion of a corn- 30
kiln louvre, said plates being arranged, disposed, and fixed in the aforesaid frame at nearly opposite angles to each other, for the purpose of preventing radiation of heat outwards. The aforesaid plates are adapted in size and number to the requirements of the furnace to which they are to be applied, so as to allow sufficient atmospheric air, and only sufficient, to enter the furnace 35
to support combustion of the fuel therein. The air in its passage between said plates becomes heated, and in this manner and by these means the con-

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sumption of the smoke is more perfectly effected than heretofore, and great economy of fuel attained.

In order to explain my said Invention as completely as possible, I now proceed to describe the best means I am acquainted with for carrying the
5 same into practical effect, reference being had to the illustrative Drawing hereunto annexed, and to the numeral figures and letters of reference marked thereon respectively, as follows:—

DESCRIPTION OF THE DRAWING.

Figure 1 is an elevation of a furnace door constructed according to my said
10 Invention, shewing the arrangement and disposition of the air plates, as they would appear if the furnace door were closed; Figure 2 shews the furnace door open, and exhibits the aforesaid plates at the inside of the door; Figure 3 is a skeleton door frame without the aforesaid plates; Figure 4 is a top plan
15 view of the air plates and case which contains them, as they would appear when detached from the door frame, exhibiting the air space between the two tiers of plates. At each of the foregoing Figures I employ similar letters of reference to denote corresponding parts, in so far as such parts appear or can be seen at each of such said Figures respectively.

A, A, is a casting, to which is hinged a skeleton door or frame B; C, C, are
20 castings, securely fixed in any convenient manner to the upright sides of the opening of the aforesaid skeleton door or frame B, as at Figure 1. The castings C, C, have projecting pieces or ribs *a, a*, formed thereon in an inclined direction, and in opposite directions, so that when the plates D, D¹, are laid thereon, they shall form a double louvre as it were, D representing one set of louvre plates
25 inclining in one direction, and D¹ another similar set of louvre plates inclining in an opposite direction; and said plates are placed at distances apart for the external air to pass between them, as at *b*, Figure 1, and *c*, Figure 4. For the convenience of inserting and removing the plates D, D¹, in and from the castings C, C, I form notches *d*, in the edges of such said castings, as exhibited
30 at Figures 1 and 2. I would here remark that the angle of inclination of the plates D, D¹, is immaterial, and will be governed principally by the distance which each pair of plates are asunder, so as to prevent and obstruct the direct radiation of heat from the furnace fire through the air spaces between the aforesaid plates; and further, the size and number of the plates must be deter-
35 mined according to the size of the furnace to which they are to be adapted, so as to allow sufficient quantity of air, and not more, to enter the furnace to support active combustion of the fuel therein. The air in its passage between the plates D, D¹, becomes heated thereby before coming into contact with the

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fuel in the furnace, and thus ensures as near as may be perfect consumption or prevention of the smoke, and consequently effects great economy in fuel. I have found in practice that good results have been obtained for effecting the objects of my said Invention, when the combined area of the air passages between the plates D, D¹, when the furnace door is closed, is in the proportion 5 of one-half a square inch to each square foot of fire surface.

Having now fully described and set forth the nature and object of my said Invention of "improvements in furnaces, for more effectually consuming the smoke and economizing the fuel employed therein," together with the best means I am acquainted with for carrying the same into practical effect, I would 10 remark, in conclusion, that what I claim as my Invention intended to be secured to me by the above in part recited Letters Patent is, the adapting to furnace doors two sets of metal plates, arranged and disposed at opposite angles to each other in a skeleton door or metal frame, for the purpose of preventing radiation of heat outwards from the furnace fire, and at the same time admitting air into 15 the furnace to support combustion of the fuel therein, thereby consuming more effectually than heretofore the smoke therefrom, and economising the fuel employed, as above stated

In witness whereof, I, the said John Miller, have hereunto set my hand and seal, this Fifteenth day of December, in the year of our Lord One 20 thousand eight hundred and fifty-six.

JOHN MILLER. (L.S.)

Witness,

JOHN SHEA,

Fan Street, Drogheda.

25

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Printers to the Queen's most Excellent Majesty. 1857.

FIG. 2.

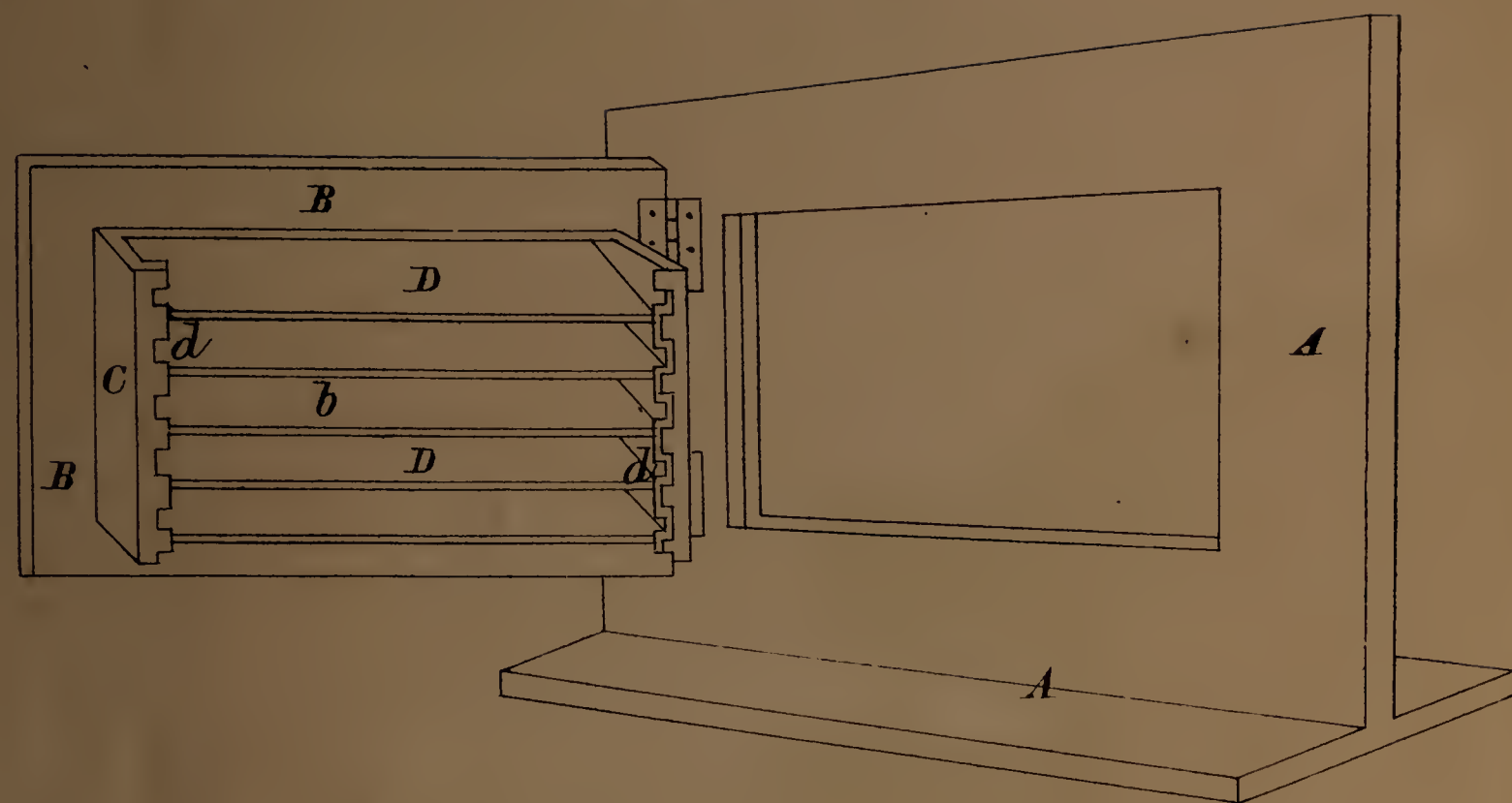


FIG. 1.

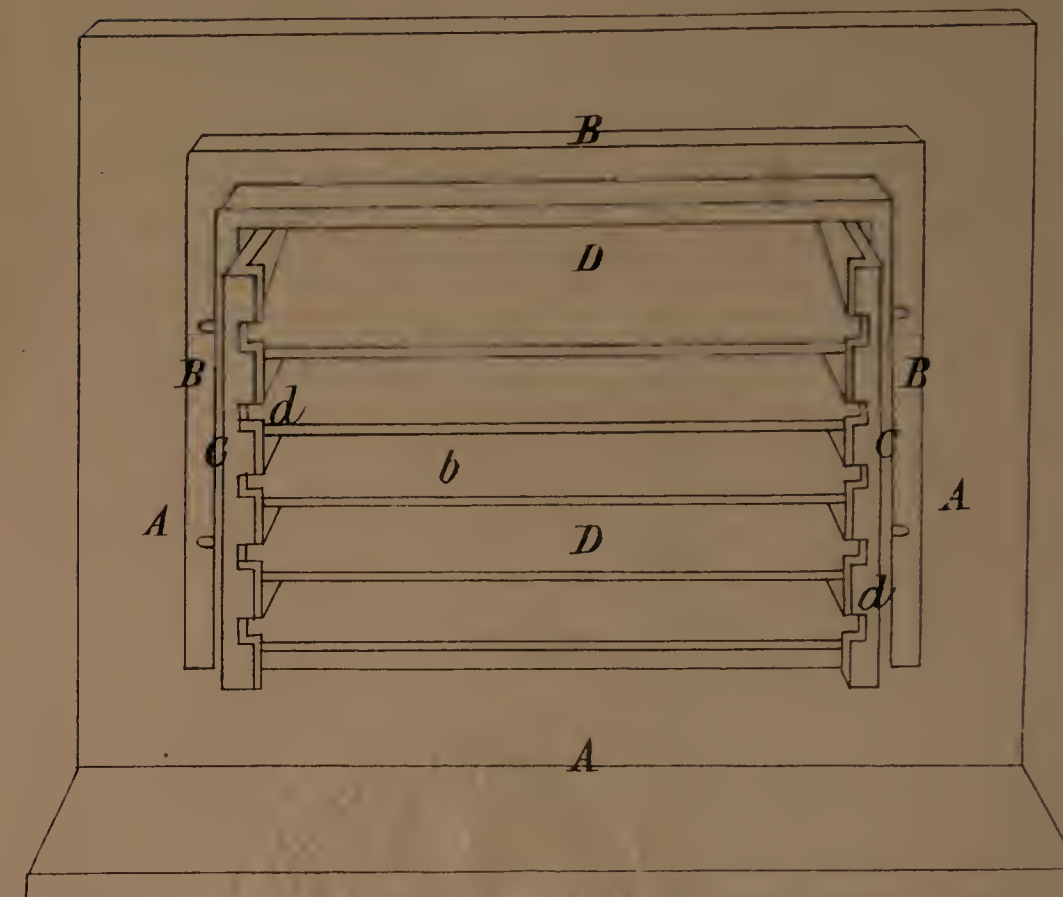


FIG. 3.

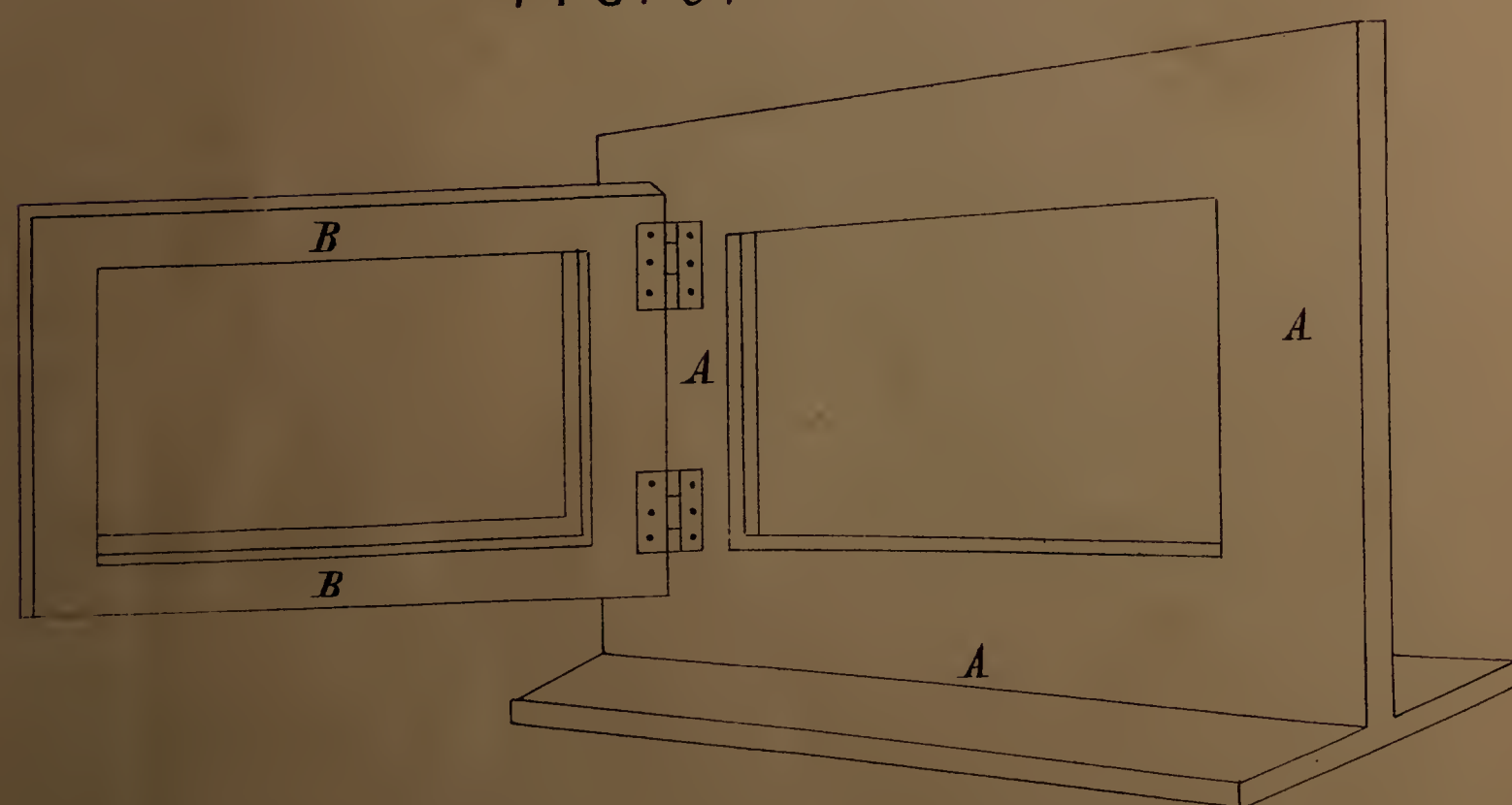
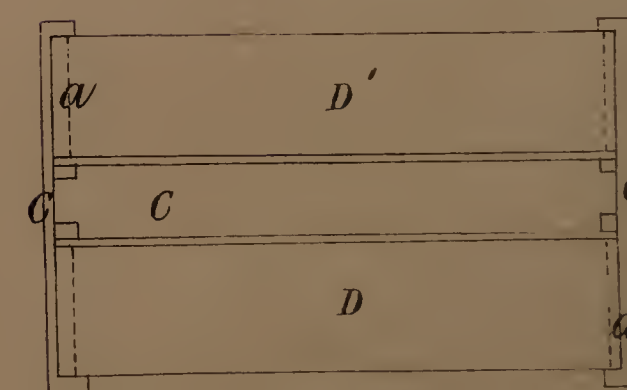


FIG. 4.



The filed drawing is not colored.

Drawn on Stone by Malby & Sons

